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砕屑性ジルコン・モナザイト年代による西南日本内帯のペルム-ジュラ系の後背地解析
Space and Temporal change of Provenance for the Permian to Jurassic Formations in the Inner zone of SW Japan

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Detrital zircon and monazite in sandstones corrected from Permian to Jurassic Formations in the Inner Zone of SW Japan has been dated over 5, 000 grains from thirty or more samples using SHRIMP, LA-ICP-MS and EPMA. Detrital zircon and monazite usually show the different age population even for the same sample. This can be attributed to difference of their original host rock distributed in its provenance. Zircon crystallizes in wide range of silica-saturated igneous rocks and high-grade gneiss while the crystallization of monazite is restricted in hornblende-free granites and pelitic gneiss. This difference enables us to analyze the constituent rock types of provenance by chronology of detrital grains. For example, fertility of zircon and absence of monazite may show the dissected island arc as its provenance.

Total age population of detrital zircons from Permian to Jurassic Formations in the Inner Zone of SW Japan shows the age clusters at around 2600-1700 Ma (Pt1 peaks), 1400-700 Ma (Pt2-3 peaks), 550-360 peaks (C-D peaks), 300-270 Ma (P1 peak), 260-240 Ma (PT peak), 220-200 Ma (T3 peak), 200-165 Ma (J1-2 peak), 160-140 Ma (J3 peak). And monazite predominates in short lived peak at around 1860 +/- 100 Ma, 500 +/- 50 Ma, 250 +/- 20 Ma, 190 +/- 10 Ma and barren in the periods before 2000 Ma, 1500-600 Ma and 420-300 Ma. Appearance and absence of each peak change depend on space, time and Terrane of which sample belongs. This difference and change can be key to study of tectonic evolution. Age populations of detrital zircon and monazite and their tectonic interpretation for each Terrane are summarized as bellows.

1) Akiyoshi Terrane and Ultra-Tamba Terrane are characterized by two age clusters of P1 and PT peaks. And they do not contain monazite at all. This means the provenance of both terranes could not be mature continental crust but island arc formed during early Permian. 2) Triassic Formations in the eastern part of the Inner Zone of SW Japan show the age clusters of C-D peak and PT peak, and former contains much of monazite. Such character may be correlated to Khanka-Jamusi-Bureya Massif of western Primorye, Far East Russia as its provenance. 3) Lower to Middle Jurassic Formations in the Inner Zone of SW Japan predominate detrital zircons belongs to Pt1 peaks with abundant monazite at around 1860 Ma. And they luck in Pt2-3 peaks and C-D peaks. This means that their provenance is North China Craton. 4) First appearance of Pt1 peak is Early Triassic time, especially in the western part of the Inner Zone of SW Japan like Suo Terrane. This time marked by the collision of North China and South China Brocks near the Proto-Japan. Suo metamorphism is thought to start coeval with this collision and subsequent mountain building.

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